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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/775,190	02/11/2004	Kiyohiro Obara	520.39602CX1	1622

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EXAMINER

ZAMAN, FAISAL M

ART UNIT	PAPER NUMBER
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2112

DATE MAILED: 10/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/775,190	OBARA, KIYOHIRO	
	Examiner	Art Unit	
	Faisal Zaman	2112	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/780,411.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/11/04</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

1. The references listed on the Information Disclosure Statement submitted on 11 February 2004, have been considered by the examiner (see attached PTO-1449).

Claim Objections

2. **Claims 1 and 15** are objected to because of the following informalities: in Line 3 of each rejected claim, the word "to" should be placed between the terms "a switch apparatus connectable" and "the first storage system". Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claims 1-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang (U.S. 6,108,345) in view of Ofek et al. ("Ofek") (U.S. 6,240,486).

Regarding Claim 1, Zhang discloses a system comprising:

A first storage system (Figure 2C, items 90 and 50A-C, Column 2, lines 30-61, LAN along with host computers in the prior art reference are considered equivalent the first storage system of the current application); and

A switch apparatus connectable the first storage system (Figure 2, item 110, Column 6, lines 31-52),

Wherein the first storage system includes a plurality of ports connectable to the switch apparatus (Figure 2C, items 50A-C, Column 5, lines 30-61),

Wherein the switch apparatus comprises:

A first port connectable to the first storage system (Figure 3, Column 2 lines 33-51, and Column 6 lines 41-52),

A second port connectable to a host computer (Figure 3, Column 2 line 65 – Column 3 line 6, and Column 6, lines 41-52, although the prior art reference doesn't specifically use the term "host computer", it would obvious to one of ordinary skill in the art that a host computer could be connected to the control bus in the prior art reference),

A third port connectable to a second storage system (Figure 3, Column 2 lines 33-51, and Column 6 lines 41-52), and

A plurality of processing apparatuses connectable to the first, second, and third ports (Column 5, lines 56-61).

Zhang does not disclose expressly:

Wherein the plurality of processing apparatuses convert a first protocol used in a first connection between the plurality of ports of the first storage system and the first port of the switch apparatus and a second connection between the host computer and the second port of the switch apparatus to a second protocol used in a third connection between the second storage system and the third port of the switch apparatus when the

Art Unit: 2112

switch apparatus transfers data from the first storage system to the second storage system.

In the same field of endeavor (e.g. data storage systems), Ofek discloses wherein the plurality of processing apparatuses convert a first protocol used in a first connection between the plurality of ports of the first storage system and the first port of the switch apparatus and a second connection between the host computer and the second port of the switch apparatus to a second protocol used in a third connection between the second storage system and the third port of the switch apparatus when the switch apparatus transfers data from the first storage system to the second storage system (abstract, Column 4 lines 22-26, and Column 19 line 35 – Column 20 line 33).

Accordingly, it would be obvious to one of ordinary skill in the art at the time the invention was made to have incorporated Ofek's teachings of data storage systems to the teachings of Zhang, for the purpose of providing on-line, real-time, transparent data migration between two data storage devices (see Ofek, Column 2, lines 13-15). Zhang provides motivation to combine by making a point of his invention to increase the efficiency of data transfer between devices with different protocols connected over a network (see Zhang, Column 2, lines 20-29).

Regarding Claim 2, Zhang discloses wherein the switch apparatus converts the second protocol to the first protocol when the switch apparatus transfers data from the second storage system to the first storage system (Column 16 lines 50-54).

Regarding Claim 3, Zhang does not disclose expressly wherein the first protocol is a SCSI protocol and the second protocol is a fiber channel protocol, however the two mentioned protocols are well known in the art to be used in the type of system disclosed in Zhang, as evidenced by the disclosure of Parks et al., cited below under Relevant Art. Parks et al. describes the common use of SCSI and fiber channel protocols in storage area networks (see Parks et al., Column 7, lines 5-43).

Regarding Claim 4, Zhang does not disclose expressly wherein the plurality of processing apparatuses of the switch apparatus execute a migration of data from the first storage system to the second storage system via the first port and the third port. However, it would be obvious to one of ordinary skill in the art that the migration of data from the first storage system to the second storage system would occur between their respective ports as shown in the discussion of Claim 1, above.

Regarding Claim 5, Zhang discloses wherein the switch apparatus further comprises a memory in which information for converting the first protocol to the second protocol and information for converting the second protocol to the first protocol are stored (Column 7 line 59 – Column 8 line 17, “non-volatile configuration RAM”).

Regarding Claim 6, Ofek discloses the following limitation, which Zhang does not disclose expressly:

Wherein the migration is executed while the host computer is accessing the first storage system (abstract, Column 19 line 35 – Column 20 line 33).

The motivation that was utilized in the combination of Claim 1, super, applies equally as well to Claim 6.

Regarding Claim 7, Zhang does not disclose expressly:

Wherein the switch apparatus converts a command for responding to the first protocol to the first storage system, said command being transferred by the host computer, to a command for responding to the second protocol to the second storage system to transfer the converted command to the second storage system.

However, Ofek teaches wherein once the host computer realizes that the first storage system (referred to as “old storage device” in Ofek) is no longer needed (ie. all data has been migrated), it only sends commands to the second storage device (referred to as “new storage device” in Ofek) (abstract, Column 12, lines 16-51).

The motivation that was utilized in the combination of Claim 1, super, applies equally as well to Claim 7.

Regarding Claim 8, all the same elements regarding the switch apparatus of Claim 1 are disclosed, therefore the supporting rationale used in the rejection of Claim 1 applies equally as well to Claim 8.

Regarding Claim 9, all the same elements regarding the switch apparatus of Claim 2 are disclosed, therefore the supporting rationale used in the rejection of Claim 2 applies equally as well to Claim 9.

Regarding Claim 10, all the same elements regarding the system of Claim 3 are disclosed, therefore the supporting rationale used in the rejection of Claim 3 applies equally as well to Claim 10.

Regarding Claim 11, all the same elements regarding the switch apparatus of Claim 4 are disclosed, therefore the supporting rationale used in the rejection of Claim 4 applies equally as well to Claim 11.

Regarding Claim 12, all the same elements regarding the switch apparatus of Claim 5 are disclosed, therefore the supporting rationale used in the rejection of Claim 5 applies equally as well to Claim 12.

Regarding Claim 13, all the same elements regarding the switch apparatus of Claim 6 are disclosed, therefore the supporting rationale used in the rejection of Claim 6 applies equally as well to Claim 13.

Regarding Claim 14, all the same elements regarding the switch apparatus of Claim 7 are disclosed, therefore the supporting rationale used in the rejection of Claim 7 applies equally as well to Claim 14.

Regarding Claim 15, Zhang discloses a system comprising:

A first storage system (Figure 2C, items 90 and 50A-C, Column 2, lines 30-61, LAN along with host computers in the prior art reference are considered equivalent the first storage system of the current application); and

A switch apparatus connectable the first storage system (Figure 2, item 110, Column 6, lines 31-52),

A second storage system connectable the switch apparatus (Figure 2C, items 92 and 52A-C, Column 2, lines 30-61, LAN along with host computers in the prior art reference are considered equivalent the second storage system of the current application),

Wherein the first storage system includes a plurality of ports connectable to the switch apparatus (Figure 2C, items 50A-C, Column 5, lines 30-61),

Wherein the second storage system includes a plurality of ports connectable to the switch apparatus (Figure 2C, items 52A-C, Column 5, lines 30-61),

Wherein the switch apparatus comprises:

A first port connectable to the first storage system (Figure 3, Column 2 lines 33-51, and Column 6 lines 41-52),

Art Unit: 2112

A second port connectable to a host computer (Figure 3, Column 2 line 65 – Column 3 line 6, and Column 6, lines 41-52, although the prior art reference doesn't specifically use the term "host computer", it would be obvious to one of ordinary skill in the art that a host computer could be connected to the control bus in the prior art reference),

A third port connectable to a second storage system (Figure 3, Column 2 lines 33-51, and Column 6 lines 41-52), and

A plurality of processing apparatuses connectable to the first, second, and third ports (Column 5, lines 56-61).

Zhang does not disclose expressly:

Wherein the plurality of processing apparatuses convert a first protocol used in a first connection between the plurality of ports of the first storage system and the first port of the switch apparatus and a second connection between the host computer and the second port of the switch apparatus to a second protocol used in a third connection between the plurality of ports of the second storage system and the third port of the switch apparatus when the switch apparatus transfers data from the first storage system to the second storage system.

In the same field of endeavor (e.g. data storage systems), Ofek discloses wherein the plurality of processing apparatuses convert a first protocol used in a first connection between the plurality of ports of the first storage system and the first port of the switch apparatus and a second connection between the host computer and the second port of the switch apparatus to a second protocol used in a third connection

Art Unit: 2112

between the plurality of ports of the second storage system and the third port of the switch apparatus when the switch apparatus transfers data from the first storage system to the second storage system (abstract, Column 4 lines 22-26, and Column 19 line 35 – Column 20 line 33).

The motivation that was utilized in the combination of Claim 1, super, applies equally as well to Claim 15.

5. U.S. Patent No. 6,598,174 to Parks et al. is cited as relevant art.

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Nagasawa et al. (U.S. 6,240,494) discloses a subsystem replacement method. Ofek (U.S. 5,896,548) discloses a data transferring system having foreground and background modes and upon detecting significant pattern of access in foreground mode to change background mode control parameters.

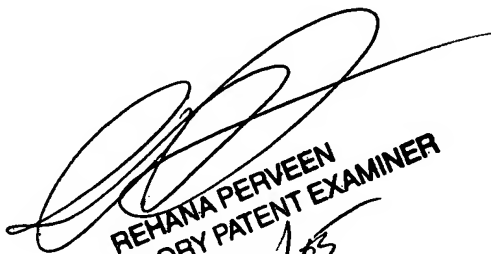
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Faisal Zaman whose telephone number is 571-272-6459. The examiner can normally be reached on Monday thru Friday, 9 am - 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rehana Perveen can be reached on 571-272-3676. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2112

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

fmz


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10/20/05